

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number
WO 2004/059441 A3

(51) International Patent Classification⁷: **G01N 31/00**

(21) International Application Number:
PCT/US2003/040974

(22) International Filing Date:
19 December 2003 (19.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/435,601 20 December 2002 (20.12.2002) US

(71) Applicant (for all designated States except US): **DAKO-CYTOMATION DENMARK A/S** [DK/DK]; Produktionsvej 42, DK-2600 Glostrup (DK).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FEINGOLD, Gordon** [US/US]; 5242 Austin Road, Santa Barbara, CA 93111 (US). **KEY, Marc** [US/US]; 290 Saddle Lane, Ojai, CA 93023 (US). **WELCHER, Rosanne** [US/US]; 1175 Church Street, Ventura, CA 93001 (US). **FAVUZZI, John** [US/US]; 5086 San Bernardo Place, Santa Barbara, CA 93111 (US).

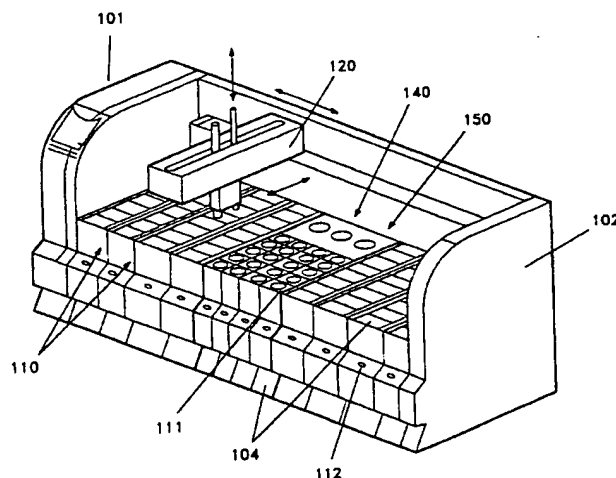
(74) Agent: **SANTANGELO, Luke**; Santangelo Law Offices, P.C., Third Floor, 125 South Howes, Fort Collins, CO 80521 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT (utility model), PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: INFORMATION NOTIFICATION SAMPLE PROCESSING SYSTEM AND METHODS OF BIOLOGICAL SLIDE PROCESSING



(57) Abstract: A sample processing system (101) that may be automated and methods are disclosed where sample(s) (198) are arranged on a carrier element (197) and a process operation control system (171) automatically processes the sample(s) perhaps robotically with an operationally-influential exteriorly-consequential information monitor (402) or a data capture element (414). Significant process details as well as operationally-influential exteriorly-consequential information may be monitored and an automatic notice element (404) may cause notification of a person at some display (415) that may be remote. Various people may be notified, such as an administrator, a supplier, or a manufacturer of an opportunity for some action such as reagent reordering or the like. A simulated motion display may be included to "watch" simulated operation in real time or long after completion of the actual processing.

WO 2004/059441 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
20 January 2005

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/40974

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 31/00

US CL : 702/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : Please See Continuation Sheet

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4, 018,565 A (Fletcher, III et al) 19 April 1977 (19.04.1977), Abstract.	26, 40, 41, 68, 82, 83
Y	US 4,404,641 A (Bazarnik) 13 September 1983 (13.09.1983), column 1, line 54 - column 2, line 25.	11, 12, 53, 54
Y	US 4,539,632 A (Hansen et al) 3 September 1985 (03.09.1985), Abstract; column 1, line 59 - column 2, line 28.	29, 32, 71, 74
Y	US 4,886,590 A (Tittle) 12 December 1989 (12.12.1989), column 2, lines 16-38.	15, 33-36, 39, 57, 75-78, 80
Y	US 4,986,891 A (Sarrine et al) 22 January 1991 (22.01.1991), column 8, lines 20-29.	7, 33, 49, 75
Y	US 5,104,527 A (Clinkenbeard) 14 April 1992 (14.04.1992), column 3, lines 26-64.	91-93, 96-98, 128-130, 133-135



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

27 July 2004 (27.07.2004)

Date of mailing of the international search report

22 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Marc S. Hoff

Telephone No. 703-305-0976

INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 5,289,385 A (Grandone) 22 February 1994 (22.02.1994), column 5, line 66 - column 6, line 36; column 7, lines 36-45; column 10, line 18 - column 11, line 10.	1, 43, 85, 92, 96, 97, 122, 129, 133, 134 2-23, 26-42, 44-65, 68-84, 86-91, 93-95, 98-106, 110-116, 120, 121, 123-128, 130- 132, 135-143, 147- 153, 157, 158
Y	US 5,316,726 A (Babson et al) 31 May 1994 (31.05.1994), column 2, lines 43-56; column 3, lines 3-6; column 5, lines 9-31; column 6, lines 3-20.	3, 45, 87, 112, 114, 124, 149, 151
Y	US 5,355,304 A (DeMoranville et al) 11 October 1994 (11.10.1994), column 5, lines 29-43.	110, 147
Y	US 5,366,896 A (Margrey et al) 22 November 1994 (22.11.1994), Abstract.	5, 47, 89, 111, 113, 126, 148, 150
Y	US 5,449,622 A (Yabe et al) 12 September 1995 (12.09.1995), Abstract.	99-104, 136-141
X — Y	US 5,473,551 A (Sato et al) 5 December 1995 (05.12.1995), Abstract; Figure 1; column 2, line 30 - column 4, line 3.	1, 7, 11-14, 26, 28, 43, 49, 53-56, 68, 70 2-6, 8-10, 15-23, 27 29-42, 44-48, 50-52, 57-65, 69, 71-84, 92, 96, 98, 112, 129, 133, 135, 149
Y	US 5,958,341 A (Chu) 28 September 1999 (28.09.1999), column 4, lines 33-50.	2, 3, 44, 45, 86, 87, 123, 124
Y	US 6,019,945 A (Ohishi et al) 1 February 2000 (01.02.2000), column 9, lines 6-42.	26, 27, 41, 42, 68, 69, 83, 84, 93, 130
Y	US 6,097,995 A (Tipton et al) 1 August 2000 (01.08.2000), column 35, line 47 - column 36, line 4.	16-19, 58-61
Y,P	US 6,509,193 B1 (Tajima) 21 January 2003 (21.01.2003), column 15, lines 19-38.	7-12, 49-54
Y,P	US 6,548,822 B1 (Morris et al) 15 April 2003 (15.04.2003), column 2, lines 23-43.	37-39, 79-81
Y	✓ US 2002/0091593 A1 (Fowler) 11 July 2002 (11.07.2002), paragraphs 34, 50-54.	29, 30, 71, 72
Y,P	US 2003/0032048 A1 (Kim et al) 13 February 2003 (13.02.2003), paragraphs 12, 215.	116, 120, 121, 153, 157, 158
X,P — Y,P	✓ US 2003/0099573 A1 (Tseung et al) 29 May 2003 (29.05.2003), paragraphs 28-30.	1-6, 43-48 7-23, 26-42, 49-65, 68-84
Y,P	US 2003/0162221 A1 (Bader et al) 28 August 2003 (28.08.2003), paragraph 218.	91, 94, 95, 128, 131, 132
Y,P	US 2003/0200111 A1 (Damji) 23 October 2003 (23.10.2003), paragraph 54.	20-23, 62-65

INTERNATIONAL SEARCH REPORT

PCT/US03/40974

Continuation of B. FIELDS SEARCHED Item 1:

702/19, 21-32, 81-84, 176-178, 182, 184, 185, 187, 188; 700/266, 267; 436/46, 49, 50; 422/63, 67; 340/3.1, 3.3, 3.31, 3.32, 3.9

Continuation of B. FIELDS SEARCHED Item 3:

USPAT, US-PGPUB, JPO, DERWENT, EPO, IBM_TDB

search terms:automatic automated sample process processing preparation, titration, staining, deparaffinization, target retrieval, reagent application, robot, robotic, monitor, alert, notify, alarm, supplier, expiration, historical usage, total reagent, predictive usage, efficacy, segmented computer file, read only file, integral change, common format, proprietary format, software selection, playback